lar. A Type B-W gas vent shall terminate at least 12 feet (3658 mm) in vertical height above the bottom of the wall furnace.

503.6.8 Exterior wall penetrations. A gas vent extending through an exterior wall shall not terminate adjacent to the wall or below eaves or parapets, except as provided in Sections 503.2.3 and 503.3.3.

503.6.9 Size of gas vents. Venting systems shall be sized and constructed in accordance with Section 504 or other approved engineering methods and the gas vent and gas equipment manufacturers' instructions.

503.6.9.1 Category I appliances. The sizing of natural draft venting systems serving one or more listed appliances equipped with a draft hood or appliances listed for use with Type B gas vent, installed in a single story of a building, shall be in accordance with Section 504 or in accordance with sound engineering practice. Category I appliances are either draft hood-equipped or fan-assisted combustion system in design. Different vent design methods are required for draft hood equipped and fan-assisted combustion system appliances.

Exceptions:

1. As an alternate method for sizing an individual gas vent for a single, draft hood-equipped appliance, the effective area of the vent connector and the gas vent shall be not less than the area of the appliance draft hood outlet, nor greater than seven times the draft hood outlet area. Vents serving fan-assisted combustion system appliances shall be sized in accordance with Section 504 or other approved engineering methods.
2. As an alternate method for sizing a gas vent connected to two appliances with draft hoods, the effective area of the vent shall be not less than the area of the larger draft hood outlet plus 50 percent of the smaller draft hood outlets, nor greater than seven times the smallest draft hood outlet area. Vents serving fan-assisted combustion system appliances, or combinations of fan-assisted combustion system and draft hood-equipped appliances, shall be sized in accordance with Section 504 or other approved engineering methods.

503.6.9.2 Category II, III, and IV appliances. The sizing of gas vents for Category II, III, and IV equipment shall be in accordance with the equipment manufacturers' instructions.

503.6.10 Gas vents serving equipment on more than one floor. A single or common gas vent shall be permitted in multistory installations to vent Category I equipment located on more than one floor level, provided the venting system is designed and installed in accordance with this section and approved engineering methods.

503.6.10.1 Equipment separation. All equipment connected to the common vent shall be located in rooms separated from habitable space. Each of these rooms shall have provisions for an adequate supply of combustion, ventilation, and dilution air that is not supplied from habitable space (see Figure 503.6.10.1).

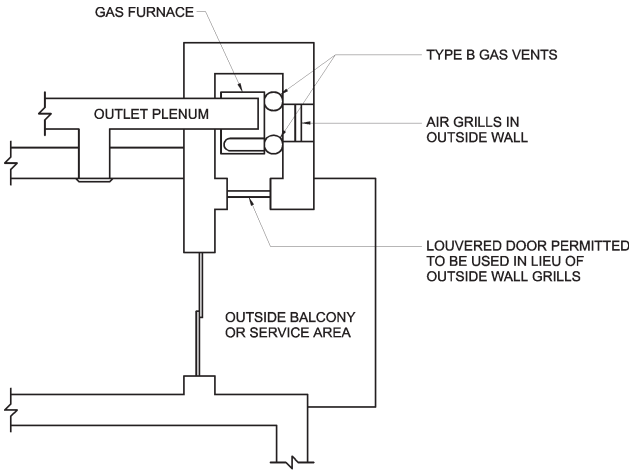

FIGURE 503.6.10.1
PLAN VIEW OF PRACTICAL SEPARATION METHOD FOR MULTISTORY GAS VENTING

503.6.10.2 Sizing. The size of the connectors and common segments of multistory venting systems for equipment listed for use with Type B double-wall gas vent shall be in accordance with Table 504.3(1) and Figures B-13 and B-14 in Appendix B, provided:

1. The available total height (*H*) for each segment of a multistory venting system is the vertical distance between the level of the highest draft hood outlet or flue collar on that floor and the centerline of the next highest interconnection tee (see Figure B-13).
2. The size of the connector for a segment is determined from its gas utilization equipment heat input and available connector rise, and shall not be smaller than the draft hood outlet or flue collar size.
3. The size of the common vertical segment, and of the interconnection tee at the base of that segment, shall be based on the total gas utilization equipment heat input entering that segment and its available total height.

503.6.11 Support of gas vents. Gas vents shall be supported and spaced in accordance with their listings and the manufacturers' instructions.

503.6.12 Marking. In those localities where solid and liquid fuels are used extensively, gas vents shall be permanently identified by a label attached to the wall or ceiling at a point where the vent connector enters the gas vent. The determination of where such localities exist shall be made by the code official. The label shall read:

"This gas vent is for appliances that burn gas. Do not connect to solid or liquid fuel-burning appliances or incinerators."

503.7 Single-wall metal pipe. Single-wall metal pipe vents shall comply with Sections 503.7.1 through 503.7.12.

503.7.1 Construction. Single-wall metal pipe shall be constructed of galvanized sheet steel not less than 0.0304 inch

(0.7 mm) thick, or other approved, noncombustible, corrosion-resistant material.

503.7.2 Cold climate. Uninsulated single-wall metal pipe shall not be used outdoors in cold climates for venting gas utilization equipment.

503.7.3 Termination. Single-wall metal pipe shall terminate at least 5 feet (1524 mm) in vertical height above the highest connected equipment draft hood outlet or flue collar. Single-wall metal pipe shall extend at least 2 feet (610 mm) above the highest point where it passes through a roof of a building and at least 2 feet (610 mm) higher than any portion of a building within a horizontal distance of 10 feet (3048 mm) (see Figure 503.5.4). An approved cap or roof assembly shall be attached to the terminus of a single-wall metal pipe (see also Section 503.7.8, Item 3).

503.7.4 Limitations of use. Single-wall metal pipe shall be used only for runs directly from the space in which the equipment is located through the roof or exterior wall to the outdoor atmosphere.

503.7.5 Roof penetrations. A pipe passing through a roof shall extend without interruption through the roof flashing, roof jacket, or roof thimble. Where a single-wall metal pipe passes through a roof constructed of combustible material, a noncombustible, nonventilating thimble shall be used at the point of passage. The thimble shall extend at least 18 inches (457 mm) above and 6 inches (152 mm) below the roof with the annular space open at the bottom and closed only at the top. The thimble shall be sized in accordance with Section 503.10.16.

503.7.6 Installation. Single-wall metal pipe shall not originate in any unoccupied attic or concealed space and shall not pass through any attic, inside wall, concealed space, or floor. The installation of a single-wall metal pipe through an exterior combustible wall shall comply with Section 503.10.16. Single-wall metal pipe used for venting an incinerator shall be exposed and readily examinable for its full length and shall have suitable clearances maintained.

503.7.7 Clearances. Minimum clearances from single-wall metal pipe to combustible material shall be in accordance with Table 503.7.7. The clearance from single-wall metal pipe to combustible material shall be permitted to be reduced where the combustible material is protected as specified for vent connectors in Table 308.2.

503.7.8 Size of single-wall metal pipe. A venting system constructed of single-wall metal pipe shall be sized in accordance with one of the following methods and the equipment manufacturer's instructions:

1. For a draft hood-equipped appliance, in accordance with Section 504.
2. For a venting system for a single appliance with a draft hood, the areas of the connector and the pipe each shall be not less than the area of the appliance flue collar or draft hood outlet, whichever is smaller. The vent area shall not be greater than seven times the draft hood outlet area.
3. Other approved engineering methods.

503.7.9 Pipe geometry. Any shaped single-wall metal pipe shall be permitted to be used, provided that its equivalent effective area is equal to the effective area of the round pipe for which it is substituted, and provided that the minimum internal dimension of the pipe is not less than 2 inches (51 mm).

503.7.10 Termination capacity. The vent cap or a roof assembly shall have a venting capacity not less than that of the pipe to which it is attached.

503.7.11 Support of single-wall metal pipe. All portions of single-wall metal pipe shall be supported for the design and weight of the material employed.

503.7.12 Marking. Single-wall metal pipe shall comply with the marking provisions of Section 503.6.12.

503.8 [Comm 65.0503 (2)] Venting system termination location. The location of venting system terminations shall comply with the following:

1. The separation between gravity and mechanical air inlets and venting system terminations shall comply with IMC Section 401.5.1 and s. Comm 64.0401 (4).

   Exceptions:

   1. This provision shall not apply to the combustion air intake of a direct-vent appliance.

TABLE 503.7.7[a]
CLEARANCES FOR CONNECTORS

EQUIPMENT	MINIMUM DISTANCE FROM COMBUSTIBLE MATERIAL			
	Listed Type B gas vent material	Listed Type I vent material	Single-wall metal pipe	Factory-built chimney sections
Listed equipment with draft hoods and equipment listed for use with Type B gas vents	As listed	As listed	6 inches	As listed
Residential boilers and furnaces with listed gas conversion burner and with draft hood	6 inches	6 inches	9 inches	As listed
Residential appliances listed for use with Type L vents	Not permitted	As listed	9 inches	As listed
Residential incinerators	Not permitted	9 inches	18 inches	As listed
Listed gas-fired toilets	Not permitted	As listed	As listed	As listed
Unlisted residential appliances with draft hood	Not permitted	6 inches	9 inches	As listed
Residential and low-heat equipment other than above	Not permitted	9 inches	18 inches	As listed
Medium-heat equipment	Not permitted	Not permitted	36 inches	As listed

For SI: 1 inch = 25.4 mm.

a. These clearances shall apply unless the listing of an appliance or connector specifies different clearances, in which case the listed clearances shall apply.